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a recording layer formed on the dielectric layer; and
a protective layer formed on the recording layer.

B2

5. The optical disc of claim 2, wherein said protective layer has an outer surface higher than peaks of the hills.

B3

24. The optical disc of claim 16, further comprising:
the substrate having a second surface opposite to and substantially parallel to the first surface with second protrusions extending from the second surface;
a second reflective layer formed on the second surface and the second protrusions;
a second dielectric layer formed on the second reflective layer;
a second recording layer formed on the second dielectric layer; and
a second protective layer formed on the second recording layer.

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 5, and 24 have been amended. Claims 1- 30 are pending and under consideration.

REJECTIONS UNDER 35 U.S.C. §112:

Claims 5 – 6, 19, 21 – 26 and 29 – 30 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed and reconsideration is requested.

Claim 5 has been amended to be dependent from claim 2 and to recite “an outer surface” of the protective layer higher than peaks of the hills. Therefore, the term of “higher than peaks of the hills” recited in claim 5 is not indefinite since “the outer surface” of the protective layer is defined to be higher than the peaks of the hills. Claim 6 is dependent from the amended claim 5.

Regarding claims 19, 21 – 26 and 29 – 30, the Examiner rejected these claims because the term of “substantially” is a relative term and therefore indefinite. It is noted that “substantially” is definite since one of ordinary skill in the art would know what is meant by “substantially same” or “substantially parallel” which is used for an optical disc having a plurality of layers. See MPEP 2173.05(b) and *Andrew Corp V. Cabrial Electronics*, 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir 1988). Therefore, the term “substantially” recited in claims 19, 22 – 24, and 29 – 30 is deemed definite. Claims 21 and 25 – 26 are dependent from claims 19 and 24, respectively. Accordingly, withdrawal of the rejection of claims 5 – 6, 19, 21 – 26 and 29 – 30 is respectfully requested.

Please note that these amendments are for clarification only and do not limit the claims within the meaning of *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 56 USPQ 2nd 1865 (Fed. Cir. 2000).

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1, 4, and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Honguh *et al.*, U.S. Patent 5,776,574 (Honguh *et al.*, '574). The rejection is respectfully traversed.

The Examiner asserted that the abstract and column 2, lines 55 – 61 of Honguh *et al.*, '574 disclose an optical recording medium comprising a substrate, an inner protective layer, recording material, reflection layer and outer protective layer having a land and groove where one of the protective layers can be a dielectric layer and that column 5, lines 24 – 25 of Honguh *et al.*, '574 also discloses an optical disk with a plurality of tracking guide grooves.

The Examiner, however, fails to address the Applicants' micro-embossments protruding from a substrate as recited in Applicants' claim 1.

Please note that the Applicants' specification describes **the micro-embossments protruding from the substrate** on page 5, lines 4 through 25.

The Applicants' specification further describes on page 3, lines 7 – 13, that the grooves of the substrate are deformed and backfilled during forming a recording layer and a reflective layer on the grooves and the surface of the substrate.

It is critical to the Applicants' invention to have the micro-embossments, as track guides, formed on the substrate to protrude from the substrate in order to prevent the recording layer and the reflective layer of an optical recording medium from being deformed and to avoid a groove backfilled during forming the layers on the substrate.

Honguh *et al.* '574 discloses a substrate 103 and guide tracking grooves 109 formed in the substrate 103. FIG. 3 of Honguh *et al.* '574 clearly shows that the track guide grooves 109 are cut into the substrate 103. Honguh *et al.* '574, however, fails to disclose the Applicants' micro-embossments protruding from the substrate.

Moreover, claim 1 recites **a substrate having flat portions and micro-embossments**, which are track guides, **protruding from surfaces of the flat portions**. This feature is illustrated in FIG. 3 of the present Application. This FIG. 3 illustrates a substrate 405, flat lands 600, and embossed hills 500 of a peaked hood shape which protrude from the surfaces of the lands 600 of the substrate 405 as described on page 5, lines 4 and 5 of the present Application.

It is noted that the tracking grooves 109 of Honguh *et al.* '574 **do not protrude** from the lands **but are cut into** the substrate 103 from land surfaces as shown in FIG. 3 of Honguh *et al.* '574.

Furthermore, no structure corresponding to the Applicants' micro-embossments protruding from the flat portions of the substrate is found in Honguh *et al.* '574. Therefore, Honguh *et al.* '574 fails to teach the Applicant's micro-embossments protruding from the flat portions. Therefore, claim 1 is not obvious over Honguh *et al.* '574.

The Examiner further asserted that it would have been obvious to one of ordinary skill in the art to arrange the optical disc layers in the claimed order because rearranging parts of an invention involves only routine skill in the art.

Even assuming *arguendo* that all of the layers are rearranged in Honguh *et al.* '574 as asserted by the Examiner, the rearrangement of the all layers results in the rearranged layers formed on tracking guide grooves 109 and land portions of substrate 103. The rearrangement of

the all layers does not suggest the Applicants' micro-embossments and layers formed on the micro-embossments of the substrate.

Please note that claim 1 recites a reflective layer formed on the surfaces of the flat portions and the micro-embossments of the substrate. In contrast, Honguh *et al.*, '574 in col. 2, lines 56 – 61 discloses a reflection layer formed on the outer protection layer formed on the recording material layer formed on the inner protection layer formed on the transparent substrate layer while the abstract and column 2, lines 55 – 61 of Honguh *et al.*, '574 disclose each layer itself. Honguh *et al.*, '574 neither teaches the Applicants' reflective layer formed on the substrate layer nor suggests the Applicant's micro-embossments protruding from the substrate.

It is well established that all claim limitations must taught or suggest in prior art reference according MPEP 2143.03. Neither the Applicants' a reflective layer formed on the surfaces of the flat portions and the micro-embossments of the substrate nor the Applicant's micro-embossments protruding from the substrate are suggested by Honguh *et al.*, '574. Since claim 1 is not obvious over Honguh *et al.*, '574, claim 1 is deemed to be allowable. Claims 4 and 11 are also deemed to be allowable at least due to their dependency on the allowable claim 1. Therefore, withdrawal of the rejection of claims 1, 4, and 11 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by Lee *et al.*, US Patent 5,470,627(Lee *et al.*, '627). The rejection is respectfully traversed.

The examiner asserted that Lee *et al.*, '627 discloses that a double-sided optical storage disk comprises a substrate having a microstructure formed on each side surface, where the microstructure is in the form of grooves (abstract), that formed on each of the side surfaces from the substrate outward are a reflective layer, dielectric layer, recording layer and transparent protective layer (Column 4, lines 27- 34), and that Lee *et al.*, '627 shows hills of a peaked hood shape in Figure 4.

The Examiner, however, fails to address whether grooves of Lee *et al.*, '627 protrude from the substrate as the Applicants' micro-embossments do, although the Examiner refers the grooves of Lee *et al.*, '627 to the Applicants' micro-embossments.

It is noted that the grooves of Lee et al. '627 are cut into the substrate while the Applicants' micro-embossments protrude from the substrate.

In a cross-sectional view of a double-sided disc of Fig. 4 of Lee et al. '627, grooves 33 are formed on both a top and a bottom of a substrate 110. The grooves 33 of Lee et al. '627 formed on the bottom of the substrate 110 do not protrude from the bottom of the substrate 110 but are cut into the substrate 110 from a side surface 111 of the bottom of the substrate 110.

The grooves 33 of Lee et al. '627 formed on the bottom of the substrate 110 look like the Applicants' micro-embossments protruding from the substrate if mistakenly observed in a **wrong direction** from the bottom to the top of the substrate 110. However, the grooves 33 of Lee et al. '627 formed on the bottom of the substrate 110 are cut into the substrate 110 if observed in a **right direction** from the top to the bottom of the substrate.

Because the top and the bottom of Lee et al. '627 are disposed opposite sides of the substrate, **the grooves 33 of the bottom of the substrate 110 should be observed in a downward direction** from the top to the bottom while **the grooves 33 of the bottom of the substrate 110 should be observed in an upward direction** from the bottom to the top of the substrate 110 in order to determine whether the grooves 33 are cut into the substrate 110 or protrude from the substrate 110.

Accordingly, since the grooves 33 formed on respective top and bottom of the substrate 110 clearly show a structure cut into the substrate 110, Lee et al. '627 does not disclose the Applicants' micro-embossments protruding from the substrate.

Moreover, the Applicants' FIG. 2 shows the double-sided disc, as prior art, having the exactly same structure cut into the substrate as the grooves 33 of Lee et al. '627. The present invention shown in Applicants' FIG. 3 indicates that micro-embossments 500 protrude from a bottom and a top of a substrate 405, respectively. Therefore, the Applicants' micro-embossments are not anticipated from the grooves of Lee et al. '627.

Furthermore, Lee et al. '627 illustrates in col. 9, lines 14 and 15 that **a microstructure in the form of the grooves 33** is defined to have, nominally, a width of about 0.4 μ m, and a depth of 0.1 μ m. Therefore, the grooves of Lee et al. '627 are clearly defined not to protrude from the substrate but to be cut into the substrate.

It is well established that no claim is anticipated under 35 U.S.C. 102(a) unless all of the elements are found in exactly the same situation and united in the same way in a single prior art reference. Every element must be literally presented, arranged in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. Id. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970), and MPEP2143.03. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co., of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Since Lee et al. '627 fails to show the Applicant's micro-embossments protruding from the flat portions of the substrate, claim 1 is distinguishable from Lee et al. '627. Therefore, claim 1 is deemed to be allowable.

Regarding claim 2, Lee et al. '627 shows a V shaped groove 33 having a depth of 0.1 um and being cut into the substrate and also discloses valleys of a grooved shape as described in column 9, lines 14 – 19. In contrast, claim 2 recites the micro-embossments protruding from the flat portions of the substrate and being hills of a peaked hood shape. Therefore, Lee et al. '627 fails to show hills of a peaked hood shape.

Since Lee et al. '627 fails to show the Applicants' micro-embossments protruding from the flat portions of the substrate and being hills of a peaked hood shape, claim 2 is distinguishable from Lee et al. '627. Thus, claim 2 is also deemed to be allowable. As such, withdrawal of the rejection of claims 1 and 2 is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1 – 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee et al., '627. The rejection is respectfully traversed.

The Examiner asserted that although Lee et al., '627 does not explicitly disclose the height of the peaked hood shape or grooves or the thickness of the protective layer, height and thickness are optimizable and that it would have been obvious to one of ordinary skill in the art to

optimize the components because discovering the optimum or workable values involves only routine skill in the art.

The Examiner also fails to address the Applicants' micro-embossments protruding from the substrate. Rather, assuming that Lee *et al.* '627 discloses the Applicants micro-embossments protruding from the substrate and having the peaked hood shape, the Examiner asserted that the height and the thickness of the components are optimizable.

However, Lee *et al.* '627 does not disclose any structure corresponding to the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape as mentioned above. Therefore, Lee *et al.* '627 neither suggests the Applicants' micro-embossments protruding from the substrate nor teaches the Applicants' thickness and height relating to the micro-embossments.

Again, all claim limitations must taught or suggest in prior art reference according MPEP 2143.03. Since Lee *et al.*, '627 neither suggests nor teaches the Applicant's micro-embossments protruding from the substrate and having the peaked hood shape, claims 1, 12, and 27 are not obvious over Lee *et al.*, '627. Therefore, claims 1, 12, and 27 are deemed to be allowable.

Regarding claims 2 – 11, 13 – 26, and 28 – 30, Lee *et al.* '627 discloses the shape and depth of the grooves in column 9, lines 14 – 19 but does not disclose the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape at all. Therefore, Lee *et al.* '627 neither suggests the shape, the height, and thickness of the Applicants' micro-embossments nor teaches any optimum or workable values relating to the thickness and the height of each layer since Lee *et al.* '627 fails to show the Applicants' micro-embossments protruding from the substrate and having the peaked hood shape.

Moreover, all values regarding the thickness and the height disclosed in Lee *et al.*, '627 are based on the layers formed on the grooves cut into the substrate. No optimum or workable values relating to the thickness and the height of Applicant's layers formed on micro-embossments protruding from the substrate is suggested in Lee *et al.*, '627. It is noted that the thickness or the height of each layers formed on the micro-embossments cannot be suggested without disclosing the Applicants' micro-embossments.

Furthermore, Lee *et al.* '627 fails to show the Applicants' first protrusions protruding from a first surface of the substrate as defined in claims 12 – 23 and 27 – 28. Lee *et al.* '627 also fails to disclose the Applicants' second protrusions protruding from a second surface of the substrate

as defined in claims 24 – 26 and 29- 30 although Lee et al. '627 discloses grooves 33 cut into the substrate 110 from opposite sides 111 of the substrate 110.

Therefore, claims 2 – 11, 13 – 26, and 28 – 30 are deemed to be allowable at least due to their dependency on the allowable claims 1, 12, and 27, respectively. As such, withdrawal of the rejection of claims 1 - 30 is respectfully requested.

CONCLUSION:

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection, along with the indication of allowability of all pending claims are therefore respectfully requested.

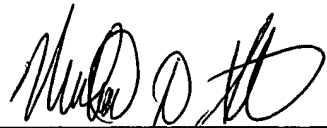
If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please **AMEND** claims 1, 5, and 24 in accordance with the following:

1. (ONCE AMENDED) An optical disc comprising:

a substrate having flat portions and micro-embossments, which are track guides,
protruding from surfaces of the flat portions;

a reflective layer formed on the surfaces of the flat portions and the [mirror-
embossments] micro-embossments of the substrate;

a dielectric layer formed on the reflective layer;

a recording layer formed on the dielectric layer; and

a protective layer formed on the recording layer.

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5. (TWICE AMENDED) The optical disc of claim [1] 2, wherein said protective layer [is]
has an outer surface higher than peaks of the hills.

24. (ONCE AMENDED) The optical disc of claim 16, further comprising:

the substrate having a second surface opposite to and substantially parallel to the first
surface with second protrusions extending from the second surface;

a second reflective layer formed on the second surface and the second protrusions;

a second dielectric layer formed on the second reflective layer;

a second recording layer formed on the second dielectric layer; and

a second protective layer formed on the second recording layer.